CLAIMS

1.   A processing apparatus for forming a film made of layers of an atomic layer level, comprising:

a chamber (12);

5   a gas supply opening (13) which is provided to said chamber (12) for supplying a predetermined gas into said chamber (12); and

an exhaust opening (14) which is provided to said chamber (12) so as to face said gas supply opening (13) for exhausting interior of said chamber (12),

characterized in that said chamber (12) is structured such that a cross section of a

10 flow passage of said gas, said flow passage going from said gas supply opening (13) to said exhaust opening (14), gradually decreases from said gas supply opening (13) to said exhaust opening (14).

2.   A processing apparatus characterized by comprising

a chamber (12),

15   a gas supply opening (13) which is provided to said chamber (12) and is connected to gas supply means for alternately supplying plural species of gases into said chamber (12), and

an exhaust opening (14) which is provided to said chamber (12) so as to face said gas supply opening (13) and is connected to exhaust means for exhausting interior of said

20 chamber (12),

said chamber (12) being structured such that a cross section of a flow passage of said gases, said flow passage going from said gas supply opening (13) to said exhaust opening (14), gradually decreases from said gas supply opening (13) to said exhaust opening (14).

25   3.   The processing apparatus according to claim 2,

characterized in that said chamber (12) is structured such that said cross section of said flow passage of said gases decreases in accordance with a distance from said gas

supply opening (13).

4.   The processing apparatus according to claim 2,

characterized in that said chamber (12) is structured such that a thickness of a

boundary layer (28) is approximately constant, said boundary layer being formed when

5 said gases are supplied into said chamber (12), on a wall of said chamber (12) that

extends along a direction of flow of said gases.

5.   The processing apparatus according to claim 2,

characterized in that said chamber (12) is structured such that a thickness of a

boundary layer is approximately constant, said boundary layer being formed when said

10 gases are supplied into said chamber (12), on a substrate which is placed in said chamber

(12) in approximately parallel with a direction of flow of said gases.

6.   A processing apparatus characterized by comprising

a chamber (12),

a gas supply opening (13) which is provided to said chamber (12) and is connected

15 to gas supply means for alternately supplying plural species of gases into said chamber

(12), and

an exhaust opening (14) which is provided to said chamber (12) and is connected to

exhaust means for exhausting interior of said chamber (12),

said chamber (12) having a cross section which has an approximately triangular

20 shape as seen from a direction approximately perpendicular to a direction of supply of

said gases, said gas supply opening (13) being provided at substantially entire one side of

said cross section, and said exhaust opening (14) being provided at a vertex portion which

faces said one side of said cross section.

7.   A method for processing a substrate placed in a chamber by alternately

25 supplying plural species of gases into said chamber from a gas supply opening and

switching atmosphere in said chamber, said method characterized by comprising:

a gas supplying step of supplying a predetermined gas into said chamber from said

gas supply opening; and

a gas flowing step of causing said predetermined gas supplied in said gas supplying step to flow in said chamber in a manner that said gas has a cross section of flow passage that decreases in accordance with a distance from said gas supply opening.

5   8.   The processing method according to claim 7,

characterized in that in said gas flowing step, a boundary layer having an approximately constant thickness is formed on a wall of said chamber and/or said substrate, along a direction of flow of said gas.